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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

FOREST INSECT INVESTIGATIONS

FOREST INSECT INFESTATIONS ST. JOE NATIONAL FOREST 1937

By
T. T. Terrell
Scientific Aide

Comments and Recommendations
James C. Evenden

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Forest Insect Laboratory
Coeur d'Alene, Idaho
February 3, 1938

U. S. GOVERNMENT PRINTING OFFICE 60918

FOREST INSECT INFESTATIONS
ST. JOE NATIONAL FOREST
1937

The first systematic survey of the St. Joe Forest to determine the degree of insect infestations was instituted during the summer of 1935. At that time 203,000 acres of the forest were examined by using the sample strip method, and data as to the amount of infestation per acre were recorded for 1934 as well as for 1935.* The data secured indicated that the infestation had decreased 45 percent during that period.

During the summer of 1937 a survey was again made to determine the extent of insect infestations. A larger area was covered by the 1937 survey, as it included all of the privately owned white pine stands as well as those in the national forest. Better type maps were secured, which gave a more accurate acreage on which to apply the data. The following table will show the acreage covered and the data secured.

* St. Joe National Forest insect survey 1935.

Table I

Unit	Acres surveyed	WP green stand per acre	Infested trees per acre: WP	Infested trees per acre: LPP	Percent of WP stand infested	Total infested trees on unit: WP	Total infested trees on unit: LPP	
Clarkia	26,428	15.6	.080		.51	2,114		
Roundtop	13,747	7.0	.029		.41	399		
Fishhook	15,437	7.1	.005		.07	77		
Bear Skull	10,869	21.0	.044	.011	.21	478	120	
Hoodoo	11,879	13.5	.012		.09	142		
Turner Flats	21,700	21.3	.012		.06	260		
Gold Creek	15,560	19.5	.021	.028	.11	327	436	
Elk River	149,169	15.2	.028		.13	4,177		WP infestation 29% windfalls
Palouse	54,095	7.1	.016		.06	865		WP infestation 71% windfalls
	318,884	13.6	.028		.21	8,839	556	

In the following tables each unit is given separately. No comparative figures are given from the 1935 survey, as the data secured were applied to the total acreage of each unit. No type maps were available at that time, and sample strips were necessarily run over the entire area. During the 1937 survey quite accurate type maps were secured, which made it possible to confine the strips to the mature timber stand within the units. The enclosed map shows the boundaries of the units surveyed.

CLARKIA UNIT

Acres surveyed	WP green stand per acre	Infested trees per acre: WP	Infested trees per acre: LPP	Percent of stand infested	Total infested trees on area: WP	Total infested trees on area: LPP
26,428	15.6	.080	0	.51	2,114	0

The Clarkia unit has the heaviest infestation on the forest. However, as there is only .05 infested tree per acre, it is not considered serious. Practically all timber of this unit is found in the Merry Creek drainage and adjacent drainages, with the infestation being confined to this area. Logging operations are in progress and much of the timber will probably be taken out within the next few years.

ROUNDTOP UNIT

Acres surveyed	WP green stand per acre	Infested trees per acre: WP	Infested trees per acre: LPP	Percent of stand infested	Total infested trees on area: WP	Total infested trees on area: LPP
13,747	7	.029	0	.41	399	0

Nothing more than a normal infestation of bark beetles was found in the Roundtop area. Although the 1935 survey indicated a light infestation of .016 infested lodgepole pine per acre, no infested lodgepole pine were found this year.

A very serious infestation of a defoliating insect (one or more species of looper) occurred in the alpine type, which caused a high degree of defoliation along the ridges.

FISHHOOK UNIT

Acres surveyed	WP green stand per acre	Infested trees per acre: WP	Infested trees per acre: LPP	Percent of stand infested	Total infested trees on area: WP	Total infested trees on area: LPP
15,437	7.1	.005	0	.07	77	0

The Fishhook basin is practically free from bark beetle infestation. Only one infested tree was found on 185 acres of sample strip

during the 1937 survey.

BEAR SKULL

Acres surveyed	WP green stand per acre	Infested trees per acre		Percent of stand infested	Total infested trees on area	
		WP	LPP		WP	LPP
10,869	21	.044	.011	.21	476	120

Although considerable timber has been killed by insects in this area in the past, very little recent damage was found. Strips run in the vicinity of this area in 1935 showed a total infestation of .275 infested tree per acre in 1934, and .122 in 1935. The attacks were predominantly in lodgepole pine at that time, as the timber stands run largely to a lodgepole pine type, which has suffered a considerable loss in the past.

HOODOO UNIT

Acres surveyed	WP green stand per acre	Infested trees per acre		Percent of stand infested	Total infested trees on area	
		WP	LPP		WP	LPP
11,879	13.5	.012	0	.09	142	0

Only a very light infestation exists in this area, which lies south and adjacent to the Roundtop and Bear Skull units.

TURNER FLATS

Acres surveyed	WP green stand per acre	Infested trees per acre		Percent of stand infested	Total infested trees on area	
		WP	LPP		WP	LPP
21,700	21.3	.012	0	.06	260	0

The Turner Flats area comprises all of the stands along the St. Joe River from Avery to Haggerty Creek, and from Sisters Mountain to Quarles and Wards Peaks. In the higher elevations the stands run largely to lodgepole pine and alpine types, while the stands along the river and creek bottoms contain some very good white pine. A severe degree of insect damage was found in the lodgepole stands near Wards Peak in 1935. However, no infestation was found in lodgepole in 1937 and very little in white pine.

GOLD CREEK

Acres surveyed	WP green stand per acre	Infested trees per acre		Percent of stand infested	Total infested trees on area	
		WP	LPP		WP	LPP
15,650	19.5	.021	.028	.11	327	436

There are some good stands of white pine along the creek bottoms in this area, while the ridges are mixed type with lodgepole predominating. Only a light infestation was found in either type.

ELK RIVER

Acres surveyed	WP green stand per acre	Infested trees per acre		Perdent of stand infested	Total infested trees on area	
		WP	LPP		WP	LPP
149,169	15.2	.028	0	.13	4,177	0

The timber stands of the Elk River unit are practically all privately owned and have never before been surveyed for insect damage. During the 1937 survey 1,352 acres of sample strip were run in this area, which extends from Boville, Idaho to Stocking Meadows, and from

Clarkia south to Dent. Only a normal infestation was found in white pine. There is very little lodgepole in the area and no lodgepole infestation was found.

PALOUSE UNIT

Acres surveyed	WP green stand per acre	Infested trees per acre		Percent of stand	Total infested trees on area	
		WP	LPP		WP	LPP
54,095	7.1	.016	0	.06	865	0

The Palouse unit comprises all of the national forest and privately owned timber adjacent to the Palouse division of the St. Joe Forest. Of the very light infestation found, 71 percent was in windfalls.

OTHER INFESTATIONS

A small infestation in Engelmann spruce by the Engelmann spruce beetle was found in the head of Fishhook Creek. This infestation was much heavier in 1935 and 1936 than at present. An intensive cruise of a small area between trail 13, waytrail 135, and the road showed 54 attacks in 1935-1936 and 14 in 1937. Of the 1937 attacks many were pitched out, and only three had heavy broods.

A large number of spruce have been killed in the past near Green Mountain, but no recent infestation was found.

Loopers

Heavy defoliation by one or more species of looper has taken place in many parts of the forest. The heaviest defoliation encountered was on the Roundtop area. Large patches of timber between the Little

North Fork of the Clearwater River and Sisters Basin have been defoliated. Other spots of defoliation were found near Bear Skull and along the ridge to Beaver Creek. Areas south of Red Ives ranger station were reported to have been defoliated. A separate report of this outbreak is being submitted.

ROOT FUNGUS

A root fungus is quite prevalent in some areas, especially near Boel's Cabin on the Elk River unit. Of 1,988 green white pine examined on the forest, .4 percent were infected with root fungus. Bark-beetle-infested trees, however, were found to be infected more frequently, as 25.5 percent of all the standing infested trees were found to have a root fungus infection.

CONCLUSIONS

The mountain pine beetle infestation is normal throughout the white pine and lodgepole pine stands. An infestation of epidemic proportions in the lodgepole pine stands, which caused considerable loss in some areas in the past, is no longer a source of danger.

The infestation of defoliators is a very serious factor, and the influence that the past year's defoliation will have on the stands is hard to predict. However, if the infestation continues for another year, a very serious loss may occur throughout the forest.

Respectfully submitted,

T. T. Terrell
Scientific Aide

COST ANALYSIS OF THE ST. JOE
INSECT SURVEY -- 1937

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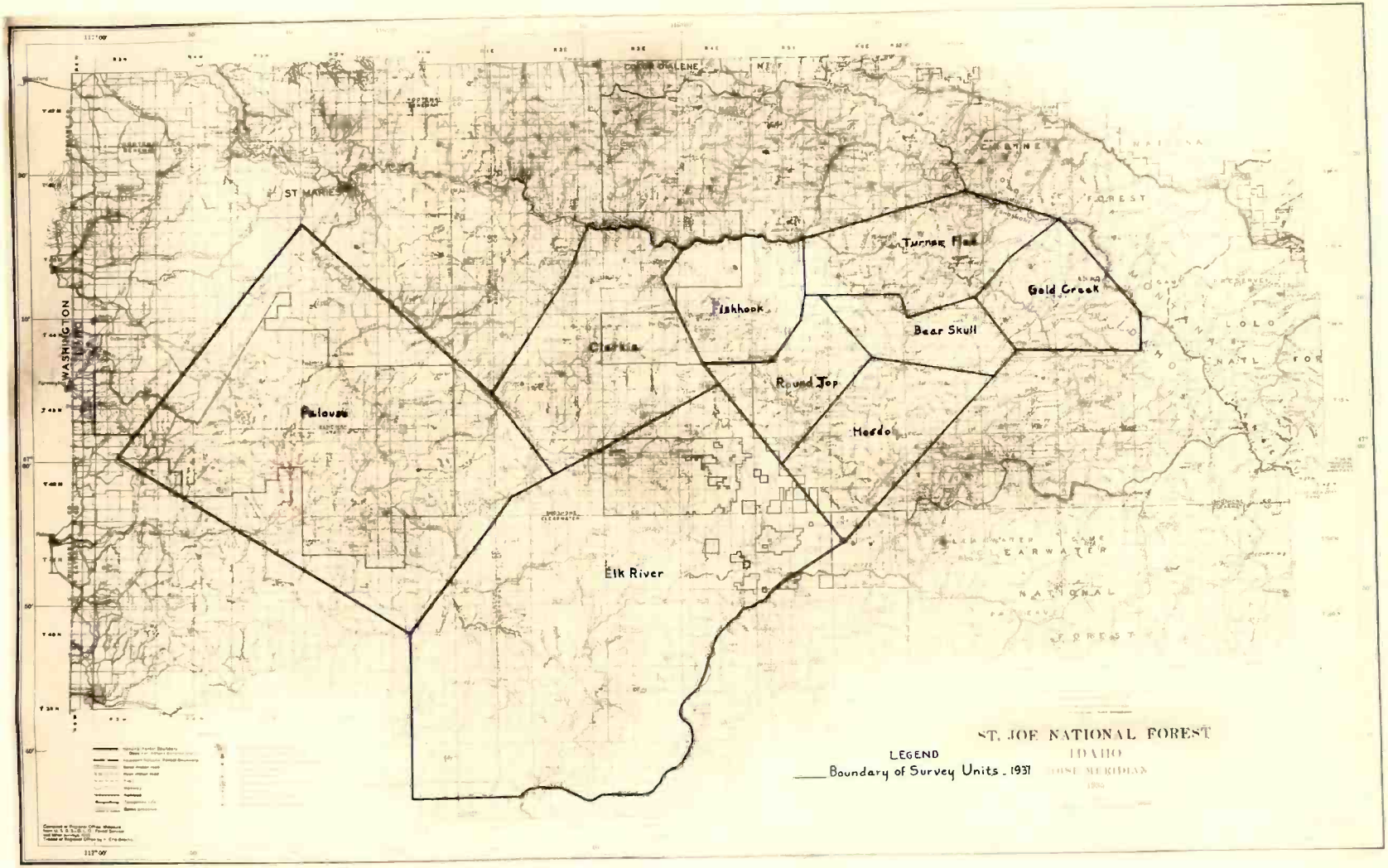
Transportation	$213.87
Subsistence	250.76
Wages	940.50
Miscellaneous & Equipment	.70
Terrell's Salary, 1 month	175.00
Total Field Cost	$1,580.83
Effective Mandays	118
Noneffective Mandays:	
25 - Cook; 1 Training; 49 - Sundays and half-holidays; 16 - Camp	91
Supervision	42
Total Mandays	251
Cost per acre surveyed (318,884)	$.005
Miles of Sample Strip	346.5
Miles of Sample Strip per Effective Manday	2.94


ST MARIES
WASHINGTON
Palouse
Clarkia
Fishhook
Turner Flat
Gold Creek
Bear Skull
Round Top
Heddo
Elk River
LEGEND
Boundary of Survey Units - 1937
ST. JOE NATIONAL FOREST
IDAHO

COMMENTS AND RECOMMENDATIONS
ST. JOE NATIONAL FOREST SURVEY
1937

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James C. Evenden

The data submitted by Mr. Terrell in his report indicate an infestation of the mountain pine beetle in the white pine stand of the St. Joe National Forest which is at or below what may rightfully be called a normal status. The heaviest 1937 loss recorded was on the Clarkia unit, where the infestation averaged .05 tree per acre. Though this infestation is concentrated in the Merry Creek and adjacent drainages, the loss per acre is not materially increased, as nearly all of the timber stands of this unit are found in that area. Though the infestation in this area should be viewed with some concern, it is not considered as being of sufficient severity at this time to warrant the institution of control. A factor which influences this decision is that a large percentage of the area will be logged during the next few years. However, it would be advisable to check this area during the coming season to record any indications of an increase in the infestation.

Though the infestation in the Elk River unit (.02 tree per acre) is not alarming, there are a few spots of heavier infestation near Beel's Cabin which would justify a reexamination of this immediate area during the 1938 season.

Mr. Terrell reports the occurrence of a small Engelmann spruce

beetle infestation in the head of the Fishhook Creek drainage. The seriousness of this infestation warrants a recheck of this area during the coming season.

Armellaria sp. is apparently well distributed throughout the forest, with rather heavy concentrations in some areas. The interrelation of this disease and subsequent bark beetle attacks is an important problem which we have advocated should receive consideration.

In summarizing Mr. Terrell's report, there would seem to be no specific recommendations aside from the two or three areas to be rechecked in 1938. However, it is recommended that this forest be resurveyed in 1938 as a means of maintaining data which will permit the early recognition of increases in the now apparently normal mountain pine beetle infestation.

Respectfully submitted,

James C. Evenden
Entomologist